6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

[FRL-10366-01-R9]

Official Release of EMFAC2021 Motor Vehicle Emission Factor Model for Use in the State of California

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice of availability.

SUMMARY: The Environmental Protection Agency (EPA) is approving and announcing the availability of the latest version of the California EMFAC (short for EMission FACtor) model for use in state implementation plan (SIP) development and transportation conformity in California. EMFAC2021 is the latest update to the EMFAC model for use by California state and local governments to meet Clean Air Act (CAA) requirements. The new model, which is based on new and improved data and new and amended regulations in California, calculates air pollution emissions factors for passenger cars, trucks, motorcycles, motor homes, and buses. The EPA is also approving EMFAC2017 adjustment factors, which are based on these same new regulations, for those areas that have already begun SIP development with EMFAC2017. This notice also sets the date after which EMFAC2021, rather than EMFAC2017 or the EMFAC2017 adjustment factors discussed in this notice, must be used to satisfy the requirement that conformity determinations be based on the latest emissions model available. Because the EMFAC model is used only in California, this notice does not affect the applicability of the Motor Vehicle Emissions Simulator (MOVES) model for users in other states.

DATES: The EPA's approval of the EMFAC2021 emissions model and EMFAC2017 adjustment factors for SIP, conformity purposes, and applicable CAA purposes as described in this notice is effective [**INSERT DATE OF PUBLICATION IN THE *FEDERAL REGISTER***]. EMFAC2021 must be used as described in this notice for all new regional emissions analyses for transportation conformity purposes that are started on or after November

15, 2024 and for all new carbon monoxide (CO) and particulate matter (PM_{10} and $PM_{2.5}$) hot-spot analyses that are started on or after November 15, 2023.

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SUPPLEMENTARY INFORMATION: Copies of the official version of the EMFAC2021 model and the EMFAC2017 adjustment factors, including technical support documents, are available on the California Air Resources Board (CARB) website: *https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/msei-modeling-tools-emfac-software-and*.

Throughout this document, "we," "us," and "our" refer to the EPA. This document is organized as follows:

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I. Background

A. What is the EMFAC model?

The EMFAC model ("EMFAC") is a computer model that can estimate emissions rates of air pollutants for on-road mobile sources ("motor vehicles"), for a range of past and future

calendar years, that are operating in California. Within the EMFAC model, emissions are calculated for a variety of different vehicle classes composed of passenger cars, various types of trucks and buses, motorcycles, and motor homes.

EMFAC is used to calculate current and future inventories of motor vehicle emissions at the state, air district, air basin, county, and project level. EMFAC contains default vehicle activity data, and the option of modifying that data, so it can be used to estimate a motor vehicle emissions inventory in tons per day for a specific year, month, or season, and as a function of ambient temperature, relative humidity, vehicle population, mileage accrual, miles of travel, and speed. Thus, the model can be used to make decisions about air pollution policies and programs at the local or state level.

The EMFAC model is based on Python and MySQL software. This structure was developed to allow CARB to incorporate new and updated regulations and emissions data into the model and provide for a simplified user experience. The model is operated in either the Emissions Mode (total on-road emissions) or the Emissions Rate Mode (emission factors) for regional emissions analyses to access emissions databases and vehicle activity data for the appropriate geographic subarea. EMFAC also includes the Project-Level Assessment (EMFAC2021-PL) feature, which is available when EMFAC is run in Emissions Rate Mode. When using EMFAC2021-PL, emissions rates are estimated based on user-specified, project-specific conditions. An updated handbook for using EMFAC at the project level is available from CARB.[1] EMFAC allows users to run one model for SIP inventories, regional emissions analyses, and project analyses.

B. For what purposes is EMFAC used?

The EMFAC model is used in California for modeling emissions of on-road vehicles. Emissions inventories based on EMFAC are used to meet SIP, conformity, and other applicable requirements under the CAA. EMFAC is also used for National Environmental Protection Act

[1] *https://ww2.arb.ca.gov/sites/default/files/2021-06/emfac2021_volume_2_pl_handbook_ada.pdf*.

and California Environmental Quality Act analyses in California where the project undergoing such analysis includes motor vehicle emissions. In addition, EMFAC can be used to model carbon dioxide emissions and energy consumption from on-road mobile sources in California, although that modeling is not used for transportation conformity and SIP purposes under the CAA.

In this notice, the EPA is addressing the use of EMFAC for CAA purposes, mainly SIP development and transportation conformity. The latest version of EMFAC should be used in ozone, carbon monoxide (CO), particulate matter ($PM_{2.5}$ and PM_{10}), and nitrogen dioxide (NO_2) SIP development as expeditiously as possible, as there is no grace period for the use of the latest emissions model in SIP submissions. The CAA requires that inventories and control measures approved into the SIP be based on the most current information and applicable models that are available when a SIP revision is developed.[2] Further discussion of the use of EMFAC in SIP revisions is found in section II.B of this notice.

CAA section 176(c)(1) and 40 CFR 93.111(a) require that the latest emissions estimates be used in transportation conformity analyses. The EPA approves models that fulfill these requirements. Under 40 CFR 93.111(a), the EPA must approve new versions of EMFAC for use in the preparation or revision of SIPs before they can be used in transportation conformity analyses.

EMFAC is used statewide in all regional emissions analyses and CO, PM_{10}, and $PM_{2.5}$ hot-spot analyses for transportation conformity determinations in California. Transportation conformity is required under CAA section 176(c) to ensure that federally supported transportation plans, transportation improvement programs (TIPs), and highway and transit projects are consistent with ("conform to") the purpose of the SIP. Conformity to a SIP means

[2] CAA section 172(c)(3). Also see the discussion of emissions inventory requirements in the "Fine Particulate Matter National Ambient Air Quality Standards: State Implementation Plan Requirements" rule (81 FR 58029, August 24, 2016) and in the "Implementation of the 2015 National Ambient Air Quality Standards for Ozone: Nonattainment Area State Implementation Plan Requirements" rule (83 FR 63022, December 6, 2018).

that a transportation activity will not cause or contribute to new air quality violations, worsen existing violations, or delay timely attainment of the national ambient air quality standards (NAAQS) or interim milestones. The EPA's transportation conformity regulations describe how federally funded and approved highway and transit projects meet these statutory requirements.[3]

C. What versions of EMFAC are currently in use in California?

[3] 40 CFR 51.390 and 40 CFR part 93.

Most SIP revisions developed in California since 2015 were developed using EMFAC2017 (released by CARB in December 2017) or EMFAC2014 (released by CARB in December 2014). The EPA approved and announced the availability of EMFAC2017 on August 15, 2019,[4] and approved and announced the availability of EMFAC2014 on December 14, 2015,[5] for all nonattainment and maintenance areas in California.

EMFAC2017 was considered a major update to EMFAC2014, and most SIP revisions in California are being updated with EMFAC2017 in the 2021-2022 timeframe. Also, California is in the process of developing SIP revisions for the 2015 ozone NAAQS using EMFAC2017 with the adjustment factors discussed in section I.F and elsewhere in this notice.

D. What has CARB submitted to the EPA for approval?

In letters dated August 30, 2021 and August 31, 2021, CARB initially requested that the EPA approve EMFAC2021 and EMFAC2017 adjustment factors, respectively, for use in developing SIP revisions and in determining conformity in California.[6] As described in section E of this notice, EMFAC2021 is a significant change from previous EMFAC models and can calculate motor vehicle emissions for all areas in California.

On October 14, 2022, CARB sent the EPA a subsequent letter ("October 14, 2022 letter") that noted CARB had found and fixed a computational error related to NO_X idling emissions from heavy-duty trucks. CARB noted this error has been fixed in EMFAC2021 version 1.0.2 and requested the EPA approve this latest version. CARB's October 14, 2022 letter also requested that the EPA approve both the desktop and web platform for version 1.02 of the of EMFAC2021 model. To create the web platform, CARB runs the model for all areas and uploads the results to a database on the web that allows users to retrieve the needed information based on what they are modeling. The web platform database is based on the corrected version of EMFAC2021.

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[4] 84 FR 41717.
[5] 80 FR 77337.
[6] The EMFAC2021 model and supporting information is available for downloading at *https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/msei-modeling-tools-emfac-software-and.* Technical documentation explaining the changes to the model and the technical foundation for the model is available at *https://ww2.arb.ca.gov/sites/default/files/2021-08/emfac2021_technical_documentation_april2021.pdf.*

Finally, CARB submitted revised EMFAC2017 adjustment factors in the October 14, 2022 letter and noted that these adjustment factors have also been revised to correct the NO_X computational error and include factors by vehicle category in addition to by calendar year. In the October 14, 2022 letter, CARB requested that the EPA approve the EMFAC2017 adjustment factors for both SIP and conformity purposes.

CARB's August 30, 2021, August 31, 2021, and October 14, 2022 letters to the EPA are available on our website.[7]

E. How is EMFAC2021 different from the previous versions of EMFAC?

The EMFAC2021 model interface and overall design has not changed significantly as compared to EMFAC2017. However, EMFAC2021 emissions estimates have changed significantly because the model includes new data, new features, significant changes to the methodologies regarding calculation of motor vehicle emissions, the effect of new emission regulations, and revisions to implementation data for control measures. For example, EMFAC2021 includes updates to modules, pollutants, emissions factors and data on car and truck activities, and emissions reductions associated with new and amended regulations reducing emissions from heavy-duty diesel trucks and buses.[8]

New features in EMFAC2021 include the addition of plug-in hybrid and natural gas-powered vehicles, the addition of ammonia emissions, and new forecasting approaches for heavy-duty and light-duty vehicles. New methodologies for brake and tire wear and evaporative emissions are included; and new emissions factor data have been developed based on CARB's Vehicle, Truck and Bus Surveillance Programs, the EPA's In-Use Vehicle Program, dynamometer and Portable Emission Measurement Systems data, and transit bus testing. Motor

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[7] *https://www.epa.gov/state-and-local-transportation/policy-and-technical-guidance-state-and-local-transportation#emission.*

[8] Regulations include the Advanced Clean Truck, Innovative Clean Transit, Heavy-duty Omnibus, Heavy-Duty Emission Warranty Phase 1, Heavy-duty Vehicle Inspection, and Periodic Smoke Inspection Programs. Requests for waivers of CAA section 209(a) preemption, which prohibits states and political subdivisions from adopting and enforcing emission standards for new motor vehicles and engines, have been submitted by CARB to the EPA for the new regulations that require such a waiver, i.e., the Advanced Clean Truck and the Heavy-duty Omnibus regulations. CARB has submitted a request that the EPA confirm that the Heavy-Duty Emission Warranty Phase 1 regulation falls within the scope of an existing waiver, or in the alternative that a waiver be granted.

vehicle fleet age, vehicle types, and vehicle populations have also been updated based on 2013-2019 California Department of Motor Vehicle data, International Registration Plan data, Port Vehicle Identification Number data, California Highway Patrol School Bus Inspections data, and National Transit Database information. Each of these changes affect emissions factors for each area in California. CARB's web site describes these and other model changes.[9]

F. What is included in the EMFAC2017 adjustment factors?

CARB has developed adjustment factors for EMFAC2017 that account for the emissions reductions associated with the same regulations included in EMFAC2021. When EMFAC2017 was developed and submitted to the EPA for approval, the model included regulations adopted by CARB as of December 2017.[10] From 2018-2021, CARB adopted new regulations and amended existing regulations that will reduce emissions from heavy-duty diesel trucks and buses, including the Advanced Clean Truck, Innovative Clean Transit, Heavy-duty Omnibus, Heavy-duty Warranty Phase 1, Heavy-duty Vehicle Inspection, and Periodic Smoke Inspection Programs. The EMFAC2017 adjustment factors would be applied to the emission output of the EMFAC2017 model for all vehicle categories by calendar year to account for the benefits of these new regulations in motor vehicle emission budgets ("budgets") and in conformity analyses to such budgets.

G. How were stakeholders and the public involved in the EMFAC development process?

Since 2019, CARB has held a series of public workshops to discuss emissions inventory updates and EMFAC updates, and to receive comments on the resulting changes in the emissions inventory and models.[11] CARB also conducted beta testing of interim versions of the model with air districts and metropolitan planning organizations (MPOs). Stakeholders and other members of the public had the opportunity to request briefings with CARB staff and provide them with comments and suggestions to improve the model. CARB also developed and posted training

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[9] *https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/msei-modeling-tools-emfac-software-and*.

[10] For further information, see the EPA's Notice of Availability for EMFAC2017 (84 FR 41717, August 15, 2019).

[11] *https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/msei-meetings-workshops*.

materials for EMFAC2021 and supports a mobile source emissions inventory email listserv to announce updates and changes to the EMFAC supporting material.[12]

CARB also made available to the public a technical document that describes updates to the model and public presentations that summarize the changes from earlier versions of the model. The technical documentation is available on CARB's website.[13] CARB provided information on specific changes incorporated into the EMFAC2021 model and included all presentations from the public workshops on the CARB web site.[14]

H. Future Updates to EMFAC

On January 31, 2006, CARB submitted a letter to the EPA and to the California Division of the Federal Highway Administration (FHWA) indicating the State's intention to make future revisions to update EMFAC. These EMFAC updates would reflect, among other new information, updated vehicle fleet data every three years. In California, MPOs and air districts cannot update vehicle fleet data embedded within EMFAC, only CARB can update the fleet data with each new EMFAC update because of the model design. The EPA's July 2004 final rule[15] states that new vehicle registration data must be used when available, prior to the start of new conformity analyses, and that states and MPOs are strongly encouraged to update the data at least every five years as described in guidance issued December 2008 by the EPA and U.S. Department of Transportation (DOT).[16] CARB's next update to the planning assumptions in EMFAC is expected in 2024.

II. The EPA's Action

A. What actions are the EPA taking in this notice?

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[12] To subscribe to CARB's listserv for Mobile Source Emission Inventory development, click "Subscribe" at *https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory*.
[13] *https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/msei-modeling-tools-emfac-software-and*.
[14] See *https://ww2.arb.ca.gov/sites/default/files/2021-08/emfac2021_technical_documentation_april2021.pdf* and *https://www.arb.ca.gov/msei/workshop-meetings.htm*.
[15] 69 FR 40004 (July 1, 2004).
[16] For more information, see the EPA and DOT's joint "Guidance for The Use of Latest Planning Assumptions in Transportation Conformity Determinations" (EPA420-B-08-901, December 2008).

In this notice, the EPA is approving and announcing that EMFAC2021[17] is available for use in statewide California SIP development, and for transportation conformity regional emissions analyses, and CO, PM_{10}, and $PM_{2.5}$ hot-spot analyses. The EPA is approving both the desktop computer and web platform for version 1.02 of the EMFAC2021 model. CARB has provided documentation that these two forms of EMFAC2021 would be identical for criteria pollutant analyses for SIP and conformity purposes.

The EPA is also approving the EMFAC2017 adjustment factors and announcing that the factors are available for use in statewide California SIP development and in regional conformity emissions analyses where SIPs are based on EMFAC2017 with adjustment factors. However, EMFAC2017 adjustment factors are not approved for CO, PM_{10}, or $PM_{2.5}$ hot-spot analyses for transportation conformity.

Because the EMFAC model is used only in California, the EPA's statewide approval of the model does not affect the applicability of the MOVES emissions factor model for users in other states. The EPA also notes that this approval action does not affect the methodology required for calculating re-entrained road dust for PM_{10} and $PM_{2.5}$ SIP revisions and transportation conformity analyses. Estimates for PM_{10} and $PM_{2.5}$ in EMFAC2021 do not include such emissions. When applicable, PM_{10} and $PM_{2.5}$ nonattainment and maintenance areas are required to use the EPA's AP-42 road dust method for calculating road dust emissions, unless a local method is approved in advance by the EPA.[18]

Use of these EMFAC models in SIP revisions is covered further in section II.B, and use of these EMFAC models for conformity is covered further in section II.C. The grace period for conformity is covered in section II.D.

B. Can EMFAC2021 and EMFAC2017 adjustment factors be used for SIP development?

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[17] EMFAC2021, v1.0.2 (October 14, 2022 release).

[18] For further information, see the EPA's notice of availability for the January 2011 AP-42 Method for Estimating Re-entrained Road Dust from Paved Roads (76 FR 6328, February 4, 2011). Also, for using AP-42 for unpaved roads, see the EPA's memorandum dated August 2, 2007, "Policy Guidance on the Use of the November 1, 2006, Update to AP-42 for Re-entrained Road Dust for SIP Development and Transportation Conformity."

The EPA is approving EMFAC2021 and EMFAC2017 adjustment factors for areas in California to use for SIP development. The EPA has previously articulated its policy with respect to how new emissions models are used in SIPs in earlier EMFAC approval notices as well as in MOVES policy guidance and *Federal Register* announcements. This notice describes how this policy applies for EMFAC2021 and EMFAC2017 adjustment factors.

EMFAC2021 should be used to estimate emissions of hydrocarbon (HC), CO, NO_X, PM_{10}, $PM_{2.5}$, ammonia, and sulfur oxides in SIP revisions that are being developed for individual nonattainment and maintenance areas in California as expeditiously as possible. The CAA requires that SIP inventories and control measures be based on the most current information and applicable models that are available when a SIP revision is developed and thus there is no grace period for use of EMFAC2021 in SIP revisions. However, the EPA also recognizes the time and level of effort that air quality planning agencies may have already undertaken in SIP development using EMFAC2017. Agencies should consult with EPA Region IX if they have questions about how EMFAC2021 affects SIP revisions under development in specific nonattainment or maintenance areas. Early consultation can facilitate the EPA's adequacy finding for motor vehicle emissions budgets for transportation conformity purposes or the EPA's action on SIP revisions.

Agencies should use the latest version of EMFAC that is available at the time that a SIP is developed. EMFAC2021 should be used for SIP revisions that will be submitted in the future so that they are based on the most accurate estimates of emissions possible. However, agencies that have already completed significant work on a SIP revision using EMFAC2017 (e.g., attainment modeling has already been completed with EMFAC2017) may continue to rely on this earlier version of EMFAC because significant work has already occurred based on the latest information available at the time the SIP revision was developed.

The CAA does not require agencies that have already submitted SIP revisions or will submit SIP revisions shortly after the release of a new model to revise these SIP revisions simply because a new motor vehicle emissions model is now available.

CARB's request for the EPA to approve EMFAC2017 adjustment factors helps in this regard because these adjustment factors address a gap for those agencies that have been diligently working towards meeting SIP submission deadlines with the latest emissions model available at the time. The adjustment factors allow the emissions benefits of the latest CARB rules that are included in EMFAC2021 to be included in these SIP revisions as well, which will help these areas demonstrate attainment of the NAAQS. Note that EMFAC2017 adjustment factors are approved for use in nonattainment and maintenance area SIP revisions only where agencies have already completed significant SIP work with EMFAC2017. In all other cases, agencies should use EMFAC2021, particularly in instances where SIP development is in its initial stages or has not progressed far enough along that switching from a previous model version would create a significant adverse impact on state and local resources.

Incorporating EMFAC2021 into an individual area's nonattainment and maintenance SIP revisions now could assist areas in mitigating possible transportation conformity difficulties in the future after the EMFAC2021 transportation conformity grace period ends.[19] New regional emissions analyses using the emissions model that are started after the grace period is over must be based on EMFAC2021,[20] so having EMFAC2021-based budgets in place at that time could provide more consistency with transportation conformity determinations.

When individual area SIP revisions based on either EMFAC2021 or EMFAC2017 with adjustment factors are submitted to the EPA, we will begin the adequacy process for the motor vehicle emissions budgets according to the process in 40 CFR 93.118(f) and find them adequate if they meet the criteria in 40 CFR 93.118(e). However, we will not be able to approve SIP

[19] Transportation conformity grace periods are discussed later in this notice in section II.D.
[20] 40 CFR 93.111.

revisions based on EMFAC2021 or EMFAC2017 adjustment factors unless applicable regulations preempted by section 209(a) of the CAA, that are included in EMFAC2021 and EMFAC2017 adjustment factors, have been granted a waiver by the EPA under section 209(b) of the CAA. California's new motor vehicle emissions standards are preempted under section 209(a) of the CAA and therefore, California can only enforce such standards upon the EPA's waiver of this preemption under section 209(b) of the CAA. The new regulations that CARB adopted that will require waiver actions include the Advanced Clean Truck, Heavy-duty Emission Warranty Phase 1, and the Heavy-duty Omnibus regulations.[21] Based on a court decision, these regulations must also be approved into the California SIP before we can approve the SIP submissions for individual California areas that incorporate the associated emissions reductions to meet CAA requirements.[22]

C. What transportation conformity analyses can EMFAC2021 and EMFAC2017 adjustment factors be used for?

The EPA is approving EMFAC2021 to estimate emissions of HC, CO, NO_X, PM_{10}, $PM_{2.5}$, ammonia, and sulfur oxides in regional emissions analyses or transportation conformity determinations.[23] The EPA is also approving the use of EMFAC2017 adjustment factors to estimate regional emissions of these same pollutants for transportation conformity only in areas that have adequate SIP-approved budgets that are based on EMFAC2017 with adjustment factors. EMFAC2017 adjustment factors can be used only for regional conformity emissions analyses that are started before the end of the conformity grace period (as discussed in section

[21] CARB has submitted requests that the EPA grant California waivers of CAA section 209(a) preemption for the Advanced Clean Truck and the Heavy-Duty Omnibus regulations, and that the EPA confirm the Heavy-Duty Emission Warranty Phase 1 regulation falls within the scope of an existing waiver, or in the alternative that a waiver be granted. See footnote 8.

[22] *Committee for a Better Arvin v. EPA,* 786 F.3d 1169 (9th Cir. 2015). section 110(a) requires these standards to be enforceable before they are approved into a SIP.

[23] The EPA notes that EMFAC2021 can be used for CO_2 emissions analyses as well, but these analyses are not being used for SIP or transportation conformity purposes. In addition, although sulfur dioxide and ammonia are listed as potential precursors for $PM_{2.5}$ formation in 40 CFR 93.102(b)(2)(v), these precursors have not been considered significant for the on-road mobile sources covered by transportation conformity in California to date.

II.E). For any regional emissions analyses that begin on or after that date, EMFAC2021 must be used.

The EPA is also approving EMFAC2021 to estimate CO, PM_{10}, and $PM_{2.5}$ emissions for conformity hot-spot analyses involving individual transportation projects. A hot-spot analysis is defined in 40 CFR 93.101 as an estimation of likely future localized pollutant concentrations and a comparison of those concentrations to the relevant NAAQS. This analysis is conducted on a smaller scale than a nonattainment or maintenance area, e.g., for a congested roadway intersection. Hot-spot analyses are completed for only certain types of transportation projects; see 40 CFR 93.123(a) and (b) for further information.

However, note that EMFAC2017 adjustment factors are not approved for estimating CO, PM_{10}, and $PM_{2.5}$ emissions for conformity hot-spot analyses involving individual transportation projects. Because hot-spot analyses are not compared to SIP-approved budgets, there is no reason to use EMFAC2017 with adjustment factors for hot-spot analyses even in areas with budgets based on EMFAC2017 with adjustment factors; EMFAC2021 can and should be used instead. (Note that during the conformity grace period (discussed in section II.D), EMFAC2017 without the adjustment factors could be used for hot-spot analyses as well.) Furthermore, we believe project sponsors would want to use EMFAC2021 rather than EMFAC2017 for hot-spot analyses of transportation projects, such as PM hot-spot analyses on highway or terminal expansions involving significant new levels of diesel trucks (per 40 CFR 93.116 and 93.123), as it would allow them to incorporate the latest planning assumptions included in EMFAC2021 (per 40 CFR 93.110).

The EPA is approving EMFAC2021 and EMFAC2017 adjustment factors for transportation conformity purposes as described in this notice. The regulations included in these models have already been adopted by CARB, the State has completed its regulatory process, and CARB has submitted to the EPA the requests for waivers on the previously mentioned regulations. Thus, any regional emissions analyses that are based on these models meet the

transportation conformity rule's requirement in 40 CFR 93.122(a)(3)(i). The emission benefits from these regulations can be included in regional emissions analyses, even before the EPA approves the regulations into the statewide SIP.

D. Does this notice establish a transportation conformity grace period for the use of this model?

The EPA is establishing a two-year grace period before EMFAC2021 is required for all new HC, NO_X, PM_{10}, $PM_{2.5}$, and CO regional emissions analyses (e.g., supporting transportation plan and TIP conformity determinations) and a one-year grace period before EMFAC2021 is required in conformity analyses for all new CO, PM_{10}, and $PM_{2.5}$ hot-spot analyses supporting project-level conformity determinations. The grace period for regional emissions analyses begins on [**INSERT DATE OF PUBLICATION IN THE *FEDERAL REGISTER***] and ends on November 15, 2024. Areas have the option of using the new model for regional emissions analyses prior to the end of the grace period.

The transportation conformity rule[24] requires that conformity determinations be based on the latest motor vehicle emissions model approved by the EPA for SIP purposes for a state or area. Section 176(c)(1) of the CAA states that ". . . [t]he determination of conformity shall be based on the most recent estimates of emissions, and such estimates shall be determined from the most recent population, employment, travel, and congestion estimates. . .."

When the EPA approves and announces the availability of a new emissions model such as EMFAC2021, the EPA will consult with DOT to establish a grace period before the model is required for conformity analyses.[25] The conformity rule provides for a grace period for new emissions models of between 3 and 24 months after notice of availability is published in the *Federal Register*.[26]

The EPA articulated its intentions for establishing the length of a conformity grace period

[24] 40 CFR 93.111.
[25] 40 CFR 93.111(b).
[26] 40 CFR 93.111(b)(1).

in the preamble to the 1993 transportation conformity rule:[27]

> EPA and DOT will consider extending the grace period if the effects of the new emissions model are so significant that previous SIP demonstrations of what emission levels are consistent with attainment would be substantially affected. In such cases, States should have an opportunity to revise their SIPs before MPOs must use the model's new emissions factors.

In consultation with FHWA and the Federal Transit Administration, the EPA considers "the degree of change in the model and the scope of re-planning likely to be necessary by MPOs in order to assure conformity" in establishing the length of the grace period.[28]

The EPA considered the time it will take state and local transportation and air quality agencies to conduct and provide technical support for analyses. State and local agencies will need to become familiar with the EMFAC2021 emissions model. Since 1993, the purpose of section 93.111(b) of the transportation conformity rule has been to provide a sufficient amount of time for MPOs and other state and local agencies to learn and employ new emissions models. The transition to a new emissions model for conformity involves more than learning to use the new model and preparing input data and model output.

In addition to incorporating the new EMFAC2021 emissions rate and fleet data, state and local agencies also need to consider how the model affects regional conformity analysis results and whether SIP and/or transportation plan/TIP changes are necessary to assure future conformity determinations. As stated earlier in the notice, the changes to EMFAC affect emissions factors for each area in California. CARB has requested a 24-month grace period for regional emissions analyses to allow them to update SIP revisions previously developed using EMFAC2014 or EMFAC2017 with the updated emissions from EMFAC2021, as necessary. The EPA agrees that a two-year regional emissions analysis grace period provides time for CARB to revise previously approved SIP revisions with EMFAC2021 if needed so that MPOs can

[27] 58 FR 62211 (November 24, 1993).
[28] 40 CFR 93.111(b)(2).

incorporate revised SIP-approved motor vehicle emission budgets into the transportation conformity process.

When the regional emissions analysis grace period ends on November 15, 2024, EMFAC2021 will become the only approved motor vehicle emissions model for all new regional transportation conformity analyses in California for meeting the requirement to use the latest emissions information in conformity analyses. In general, this means that all new HC, NO_X, PM_{10}, $PM_{2.5}$, and CO regional conformity analyses started after the end of the two-year grace period must be based on EMFAC2021, even if the SIP is based on an earlier version of the EMFAC model, such as EMFAC2014, EMFAC2017, or EMFAC2017 with adjustment factors.

In addition, in most cases, if an area revises previously approved EMFAC2014 or EMFAC2017-based SIP-approved budgets using EMFAC2021, the revised EMFAC2021 budgets would be used for conformity purposes once the EPA approves the SIP revision. In general, the EPA will not make adequacy findings for these SIP revisions because submitted SIPs cannot supersede approved budgets until they are approved. However, 40 CFR 93.118(e)(1) allows an approved budget to be replaced by an adequate budget if the EPA's approval of the initial budgets specifies that the budgets being approved may be replaced in the future by new adequate budgets. This flexibility has been used in limited situations in the past, such as during the transition from EMFAC7F and EMFAC7G to EMFAC2002.[29] In such cases, the EMFAC2021-based budgets would be used for conformity purposes once they have been found adequate. California air agencies should consult with the EPA as needed to determine if this flexibility applies.

Upon consideration of the transportation conformity rule's factors, the EPA is also establishing a one-year grace period before EMFAC2021 is required in conformity analyses for all new CO, PM_{10} and $PM_{2.5}$ hot-spot analyses supporting project-level conformity determinations. The grace period for hot-spot analyses begins on [**INSERT DATE OF**

[29] 67 FR 46618 (July 16, 2002), 67 FR 69139 (November 15, 2002), and 68 FR 15720 (April 1, 2003).

PUBLICATION IN THE *FEDERAL REGISTER*] and ends on November 15, 2023. Areas have the option of using the new model for hot-spot analyses prior to the end of the grace period.

For application of EMFAC2021 at the project level, the application of EMFAC2021 and the model's overall design and interface are similar to EMFAC2017. As a result, project sponsors developing future hot-spot analyses for projects that require such analyses in CO and PM nonattainment and maintenance areas that have already used EMFAC2021 should not need significant time to familiarize themselves with this model.[30] In addition, the fact that time may be needed for revising SIPs or transportation plans/TIPs due to the emissions factor changes in EMFAC2021 is irrelevant for hot-spot analyses because hot-spot analyses do not rely upon such planning documents. But while EMFAC2021's model design and interface has not significantly changed from EMFAC2017, project sponsors may still need some time to familiarize themselves with CARB's updated EMFAC2021-PL handbook and consider technical resource allocation issues to incorporate EMFAC2021 into any future hot-spot analyses in multiple CO, PM_{10}, and $PM_{2.5}$ nonattainment and maintenance areas across California.

Therefore, it is appropriate to set a one-year grace period to allow all areas in California to incorporate EMFAC2021 in conformity hot-spot analyses for required project types and apply the updated planning assumptions incorporated in EMFAC2021 in a timely manner. In the interim, new PM and CO hot-spot analyses that are started prior to the end of the EMFAC2021 grace period can be based on EMFAC2017.[31]

When the hot-spot analysis grace period ends on November 15, 2023, EMFAC2021 will become the only approved motor vehicle emissions model for all new hot-spot transportation conformity analyses for required project types across California for meeting the requirement to use the latest emissions information in conformity. In general, this means that all new CO, PM_{10},

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[30] The EPA's PM Hot-Spot Guidance, found on the EPA's website at: *https://www.epa.gov/state-and-local-transportation/project-level-conformity-and-hot-spot-analyses*, continues to apply for PM hot-spot analyses along with CARB's PL handbook for EMFAC2021.

[31] 40 CFR 93.111(c); see also the EPA's website: *https://www.epa.gov/state-and-local-transportation/project-level-conformity-and-hot-spot-analyses* for the latest guidance documents and information.

and $PM_{2.5}$ hot-spot analyses started after the end of the one-year grace period must be based on EMFAC2021 rather than EMFAC2017.

E. Can areas use EMFAC2017 during the grace period?

The conformity rule provides some flexibility for regional emissions analyses that are started before the end of the grace period.[32] Analyses that begin before or during the grace period may continue to rely on EMFAC2017. Also note that these regional emissions analysis results, when compared to an EMFAC2017-based motor vehicle emissions budget, can include the EMFAC2017 adjustment factors only if those adjustment factors were used in the motor vehicle emissions budget. This is the one case where a regional emissions analysis would need to use either EMFAC2017 with adjustment factors (or EMFAC2021) to show that conformity with the SIP is demonstrated. The interagency consultation process should be used if it is unclear if an EMFAC2017-based analysis was begun before the end of the 24-month grace period. When the grace period ends, EMFAC2021 will become the EPA-approved motor vehicle emissions model for regional emissions analyses for transportation conformity in California.

CO, PM_{10}, and $PM_{2.5}$ hot-spot analyses for project-level conformity determinations can be based on EMFAC2017 if the analysis was started before the end of the 12-month grace period, and if the final environmental document for the project is issued no more than three years after the issuance of the draft environmental document.[33] Quantitative analysis already underway that was started before the end of the grace period using EMFAC2017 can be completed as long as 40 CFR 93.111(c) is satisfied. The interagency consultation process should be used if it is unclear whether an EMFAC2017-based analysis is covered by the circumstances described in the transportation conformity rule.

III. Summary of the EPA's Actions

As described in this notice, the EPA is approving and announcing the availability of

[32] 40 CFR 93.111(c).
[33] Id.

EMFAC2021 and EMFAC2017 adjustment factors as submitted by CARB on October 14, 2022, for SIP, conformity, and applicable CAA purposes with the following limitations and conditions:

(1) The approval is limited to California,

(2) The approval is statewide and applies to estimation of emissions of HC, CO, NO_X, $PM_{10,}$ $PM_{2.5}$, ammonia and sulfur oxides. In addition, EMFAC2021 will be used for pollutants and precursors that are applicable in a given nonattainment or maintenance area. The EPA is approving the emissions factor elements of EMFAC2021, but not the associated default travel activity (e.g., vehicle miles traveled).

(3) The approval of EMFAC2021 and EMFAC2017 adjustment factors is for the development of individual nonattainment and maintenance area SIPs. The EPA will not be able to approve these SIPs unless applicable regulations preempted by section 209(a) of the CAA included in EMFAC2021 and EMFAC2017 adjustment factors have been granted a waiver by the EPA under section 209(b) of the CAA. These regulations must also be approved into the California state SIP before we can approve SIP submissions for individual California areas.

(4) A 24-month statewide transportation conformity grace period for regional emissions analyses will be established beginning [**INSERT DATE OF PUBLICATION IN THE *FEDERAL REGISTER***] and ending November 15, 2024 for the transportation conformity uses described in (2) above.

(5) The EPA is also approving EMFAC2021's Emission Rate Mode that allows the model to estimate project-level emissions for CO, PM_{10}, and $PM_{2.5}$ conformity hot-spot analyses.

(6) The EPA is also approving EMFAC2017 adjustment factors that account for the emission reductions consistent with the CARB regulations incorporated into EMFAC2021 for use in SIP development and in regional emissions analyses for pollutants and precursors that are applicable in a given nonattainment or maintenance area that has SIP-approved motor vehicle emissions budgets based on EMFAC2017 with adjustment factors. These

adjustment factors can be used in regional emissions analyses for transportation conformity only until November 15, 2024 and cannot be used in transportation conformity hot-spot analyses.

(7) A 12-month statewide transportation conformity grace period for hot-spot analyses will be established beginning [**INSERT DATE OF PUBLICATION IN THE *FEDERAL REGISTER***] and ending November 15, 2023 for the transportation conformity uses described in (4) above.

Dated: November 8, 2022.

Martha Guzman Aceves,
Regional Administrator,
EPA Region IX.

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